

Climatological Data for October, 1910.
DISTRICT No. 11, CALIFORNIA.

Prof. ALEXANDER G. McADIE, District Editor.

GENERAL SUMMARY.

October in California may be said to mark the beginning of the rainy season. The long dry period from about the middle of spring to the end of September gives way to conditions in which an occasional storm may appear covering a period of four or five days. Naturally the likelihood of such rains increases as the month draws to a close. There have been Octobers, however, that were as dry as any midsummer month. In a record covering a period of 62 years it appears that for the central counties of California there have been nine Octobers that were practically rainless, or nearly 15 per cent. On the other hand, there have been ten Octobers which might very well be classified as winter months, if we consider the frequency and intensity of the rainfall. The present October was one of deficient rainfall in the central and northern counties of the district; but of heavy rainfall south of the Tehachapi, with the amount increasing as one went southward. All things considered October, 1910, was warmer than usual. It was warmer than last October and still warmer than October, 1908.

There were no noteworthy features, the month as a whole being one of quiet fall weather. In the main the pressure distribution was that of a moderate high over the northern half of the Pacific slope and a moderate low over the Valley of the Colorado, thus causing a general flow of air from the north or northeast. When this distribution is unduly strengthened, we have, in addition to the north winds, marked heating effects in the Great Valley. An illustration of this can be found near the end of the first week of the present October, when afternoon temperatures occurred as follows: Fresno, 96°; Sacramento, 92°; San Jose, 92°; San Francisco, 89°, and Los Angeles, 88°. The first noticeable departure from the general pressure distribution as referred to above occurred about the 10th of the month. In this case a small depression developing over the northern part of the State practically reversed the circulation of the lower air. The change to southerly winds resulted in lower temperatures and moderate rains. There was an interesting fall in temperature amounting to 23° in 24 hours at Mount Tamalpais on the afternoon of the 10th. The normal circulation was restored about the 13th, except in the southern counties, where this was somewhat delayed. A second warm spell occurred on the 19th under conditions similar to those described in the case of the first warm spell. Afternoon temperatures were as follows: Sacramento, 84°; Red Bluff, 82°; San Francisco, 83°; San Luis Obispo, 83, and Fresno, 84°. The pressure distribution continued practically unchanged until the end of the month.

The weather was favorable from an agricultural standpoint, with the exception of the rains on the 11th, 12th, and 13th. These interfered somewhat with fruit drying, raisin making, and the thrashing of beans. However, ample warnings were given in the forecasts and moreover the great bulk of the crops was already harvested. There was not a sufficient supply of water, although the comparatively early rains relieved the situation somewhat. The first snow fell at Summit on October 11, amounting to 2.2 inches. It melted rapidly, however, and at the close of the month there was no snow on the ground. The greatest rainfall at any one station was at Monumental, where nearly 3.5 inches fell. There were many stations at which no rain was reported.

TEMPERATURE.

The mean temperature for the State was nearly 2° above the normal. The following table gives the mean temperature for California during the time in which records have been kept:

Year.	Mean.	Departure.	Year.	Mean.	Departure.
1897.....	58.5	-1.5	1904.....	61.6	+1.6
1898.....	61.0	+1.0	1905.....	60.7	+0.7
1899.....	58.1	-1.0	1906.....	63.4	+3.4
1900.....	58.8	-1.2	1907.....	62.0	+2.0
1901.....	63.2	+3.2	1908.....	58.3	-1.7
1902.....	60.7	+0.7	1909.....	60.2	+0.2
1903.....	64.0	+4.0	1910.....	61.9	+1.9

The highest temperature reported at any station was 108° at Indio and Mammoth on the 8th. This was 4° higher than the highest reported during October, 1909. The lowest was 15° at Montague on the 28th. This was 4° warmer than the lowest recorded for October, 1909.

PRECIPITATION.

The average monthly precipitation for the State was 0.83 of an inch, or 0.78 of an inch below the normal. In other words, considering the section as a whole, there was only about half the normal rainfall. Nor was the distribution of the rain geographically of a uniform character. In the southern counties the rainfall was from 10 to 20 per cent above the normal; while in the northern counties, especially the coast counties, there was a deficiency of more than 50 per cent. There appears to have been some persistent cause for the diminished rainfall in the northern counties, during the spring, summer, and early fall of this season there having been a marked deficiency in rain in that section where usually frequent, though often light showers occur.

The average monthly precipitation for California in October is as follows:

Year.	Amount.	Departure.	Year.	Amount.	Departure.
	Inch.	Inch.		Inch.	Inch.
1897.....	1.79	+0.18	1904.....	2.74	+1.13
1898.....	0.59	-1.02	1905.....	0.13	-1.49
1899.....	3.50	+1.89	1906.....	0.08	-1.52
1900.....	2.34	+0.73	1907.....	1.56	-0.05
1901.....	1.50	-0.11	1908.....	1.37	-0.24
1902.....	1.78	+0.17	1909.....	1.66	+0.05
1903.....	0.49	-1.12	1910.....	0.83	-0.78

The greatest snowfall was 13 inches at Tamarack, in Alpine County. Total snowfall at Summit was 3 inches. At other places in the mountains the snowfall varied from 1 to 7 inches. In the Yosemite Valley there was half an inch of snow.

SUNSHINE.

The following table gives the total hours of sunshine and percentages of the possible:

Stations.	Hours.	Per cent of possible.	Stations.	Hours.	Per cent of possible.
Eureka.....	143	43	Sacramento.....	285	82
Fresno.....	300	86	San Diego.....	268	76
Los Angeles.....	295	84	San Francisco.....	248	71
Mount Tamalpais.....	250	72	San Jose.....	254	73
Red Bluff.....	279	81	San Luis Obispo.....	243	69

EARTHQUAKES RECORDED AT SANTA CLARA, CAL., DURING OCTOBER, 1910.

October 4, 3:11:51 p. m. to 3:26:18 p. m.; minor tremors all day; disturbance southeast; period 1.2 seconds; the vertical showed a disturbance on October 3, p. m., but nothing on horizontal; also slight disturbance 11:48 p. m. to 11:50:45 p. m.

October 15, 6:03 a. m. to 12:49:20 p. m.; minor tremors varying to 3 mm. all day; disturbance southeast.

October 17, 9:19:21 p. m. to 9:20:48 p. m.; also October 18, 5:08 a. m. small tremors on horizontal, lasting until 7 p. m.; largest maximum double amplitude 2 mm. direction southeast.

October 21, 10:57:11 p. m. to 11:02:30 p. m.

The disturbance of October 21 is the sixteenth seismic record obtained by Father Ricard and his assistant Mr. A. Newlin at Santa Clara, since the installation of the Weichert 80 kg. astatic horizontal and vertical seismograph. The first record was obtained June 9, 1910.

NOTES ON THE RIVERS OF THE SACRAMENTO AND SAN JOAQUIN WATERSHEDS FOR OCTOBER, 1910.

By N. R. TAYLOR, Local Forecaster.

Sacramento watershed.—No important changes occurred in any of the streams of this watershed after September 30, and, in most cases, the low-water mark was reached in all of the main water courses during the last decade of September or the 1st of October.

The Sacramento River itself, while unprecedently low for the month, averaged slightly higher than during the month preceding, due to the rains that were more or less general throughout its drainage area from the 10th to 13th, inclusive. In the vicinity of the month of the Pitt River the Sacramento averaged 0.8 foot higher than during September. At Red Bluff the average stage, 1.1 foot, was 0.1 foot above that of September and the same amount higher than that of October, 1908, the year of extreme low water. At Colusa the river averaged 1.4 foot, which is 1.2 foot below the October normal stage and 0.7 foot below the lowest previous average for the month. At Knights Landing there was an average stage of only 0.3 foot, which is 0.9 foot below the October normal and 0.7 foot lower than the previous lowest average for the month. At Sacramento City the river averaged 5.7 feet, which is 1.5 foot below the average that has been maintained at this point during the past ten years, and 0.2 foot below the low water of October, 1908. Below Sacramento City there was little departure from the usual October stages.

The rainfall had little effect on the general averages of the streams in the Yuba-Feather territory, the Yuba at Marysville being lower than ever before recorded during any month, and the Feather at Oroville being the same as that recorded during the two preceding months.

The stage of the American River at Folsom, Fair Oaks, and Sacramento City averaged practically the same as that recorded in September and slightly higher than that of August, 1910. It was, however, lower than the lowest ever before known in October.

San Joaquin watershed.—While more rain fell in this watershed than in that of the Sacramento, the effects of the rainfall on the streams were less noticeable. The San Joaquin itself averaged generally lower than during the two preceding months, and while some of its tributaries, notably, that of the Tuolumne, responded slightly to the rainfall, all streams by the close of the month had receded to the extreme low-water mark.

The following paper appeared in the Pacific Rural Press, San Francisco, October 29, 1910, and is republished by the courtesy of the Editor:

SIXTY YEARS OF RAINFALL IN CALIFORNIA.

By A. G. MCADIE.

In no portion of the habitable globe are seasonal rainfalls more closely watched and studied than in California. There are many sections of the United States where departures from normal conditions are followed with interest; but there is no district where an excess or deficiency in rainfall means more or is more directly and vitally connected with the welfare of the community than in our own California. The history of each year's rainfall is written

in the crop yield and in our material prosperity. If rain falls in sufficient amount within seasonal limits and is well distributed as to time and amount, a good year based upon abundant crop yield may be anticipated. On the other hand, scanty rainfall, or even an average rainfall badly distributed means poor harvests and their consequences. As agriculture underlies commercial prosperity, it is plain that the activities and industries of the State are bound up with and directly dependent upon the seasonal rainfall and the resulting supply of water.

Not without reason then do our people in California at the beginning of each rainy season take an interest in the frequency and intensity of the rains and try to estimate the character of the impending season.

The accompanying diagrams of seasonal rainfall first came into prominence during a period of drought, the dry seasons of 1897-98, and 1898-99, when there was a widespread uneasiness among our people and a general misapprehension that the climate was permanently changing. The charts conclusively show that such dry periods were only incidental and gave no true indication of a permanent change. Indeed, it was made plain that there was every reason for expecting a return to normal conditions.

It is not possible to forecast with any degree of certainty the coming season; but the careful student can detect in these records certain seasonal trends. He can also more intelligently refute the hasty conclusions put forth now and again by eager but poorly informed persons who think they have found the secret of seasonal forecasting.

It is plain that there is no regular sequence of wet and dry seasons, and this is as it should be, because while law is supreme in meteorology as elsewhere and our storms develop, move, and disappear in accordance with physical laws, understood in part, there are too many independent variables entering into the problem of rain formation and the condensation of the water vapor of the air to allow us to hope for a regular and easy solution of the problem. It is plain from the charts that an abnormal wet month is not necessarily followed by another of the same character; or in other words, rainy periods are of unequal length. No one can predict from the existence of one dry month in winter that the balance of the season will be dry. All that we can say at present is that wet seasons and dry seasons come and go in a very irregular way. Nor is there any determinable period between abnormal conditions. The chart herewith covers the rainfall for sixty years at two stations, San Francisco and San Diego, more than 500 miles apart. If we divide the sixty years in decades, we have:

SAN FRANCISCO.

	Inches.
10 seasons, 1849-1859	227.47
10 seasons, 1859-1869	257.85
10 seasons, 1869-1879	227.00
10 seasons, 1879-1889	234.23
10 seasons, 1889-1899	218.81
10 seasons, 1899-1909	210.28

The mean rainfall for ten seasons is 229 inches.

It is interesting to note that during the month of January, 1862, 24.36 inches fell, i. e., more rain fell in one month than the normal annual rainfall.

SAN DIEGO.

	Inches.
9½ seasons, 1850-1859	81.05
10 seasons, 1859-1869	97.04
10 seasons, 1869-1879	84.71
10 seasons, 1879-1889	119.21
10 seasons, 1889-1899	88.54
10 seasons, 1899-1909	97.24

Allowing for the missing half season, we make the average rainfall for each ten seasons 95 inches.

Note that in February, 1884, there was a rainfall of 9.05 inches; or almost as much as the normal rainfall of an entire season.

One will often hear it stated, especially in southern California, that a dry October presages a dry winter, but the records show that little dependence can be placed in statements of this character. One of the heaviest seasonal rainfalls, that of 1873-74, followed a dry October. A wet fall is, however, frequently followed by a wet winter.

Let it be also remembered that the State of California extends from latitude 32° 40' to 42° 0' N. It has a mean length of nearly 800 miles, with an average width of 200 miles and an estimated area of a hundred million acres. Naturally in so large an area there must be great diversity in the character of the rain. At some localities in the State the seasonal rainfall does not average one inch. While at others it exceeds 80 inches. In general, seasons of heavy rainfall in the north are also seasons of good rainfall in the south. But exceptions can be found even to this. There is one type of storm, the Sonora, which, causing heavy rains in the south, leaves the northern counties practically without rain. On the other hand, many of the northern storms pass eastward without resulting rains in the southern counties.

TABLE 1.—Climatological data for October, 1910. District No. 11, California.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.			Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmeted.	Number of rainy days, .10 inch or more.	Number of partly cloudy days.	Number of cloudy days.			
Oregon.																				
Klamath Agency.	Klamath.	4,169	2	45.2		76	8	19	31	53	1.17	+ 0.56	1.10	0.0	2	22	3	6	w.	Edson C. Watson.
Klamath Falls.	do.	4,250	5	49.3	+ 0.1	81	8	25	2	44	1.62	+ 0.56	1.25	0.0	5	24	3	4	nw.	W. H. Heilman.
Lakeview.	Lake.	4,800	7																Geo. L. Wharton, Jr.	
Merrill.	Klamath.	4,070	4	48.5		80	7	21	2	50	0.91		0.91	0.0	1	24	4	2		Mrs. Agnes Ritchison.
Yonna.	do.	3	45.8			80	8	16	28	52	1.38		0.73	0.0	6	22	7	2	s.	Jacob Rueck.
California.																				
Alameda.	Alameda.	1	61.3			84	7	48	5	T.			T.	0.0	6	21	4	6	nw.	Chas. E. Sears.
Alturas.	Modoc.	4,480	6	49.4		84	8	23	23†	54	1.01		0.48	0.0	6	23	3	5	sw.	Prof. C. B. Towle.
Anderson (near).	Shasta.	550	1																C. S. Richardson.	
Angiola.	Tulare.	208	10	54.2	-10.2	80	19	35	23†	42	0.57	+ 0.43	0.30	0.0	2	27	0	4	nw.	Santa Fe Co.
Antioch.	Contra Costa.	48	31			75	6†	43	24		0.04	- 0.76	0.02	0.0	2	25	0	6		Southern Pacific Co.
Aptos.	Santa Cruz.	102	25	58.6	+ 0.8	101	7	52	13	27	0.00	- 0.24	0.98	0.0	0	20	5	6	nw.	Do.
Arrowhead Springs.	San Bernardino.	2,000	1	73.6		93	9	32	20	49	1.25	- 0.62	0.66	0.0	3	25	0	6	ne.	G. I. Royce.
Auburn.	Placer.	1,260	9	62.8	- 1.8	81	19	53	15	24	1.05		0.53	0.0	5	25	4	2	w.	Southern Pacific Co.
Avalon.	Los Angeles.			64.7															W. N. Vilas.	
Asusa.	do.	540	8																A. P. Griffith.	
Bagdad.	San Bernardino.	784	7	75.0		101	10	49	23	39	0.00		0.00	0.0	0	26	0	5		Santa Fe Co.
Bakersfield.	Kern.	404	21	69.7	+ 3.7	97	15	47	19	39	0.83	+ 0.36	0.27	0.0	4	26	0	5	w.	Do.
Barstow.	San Bernardino.	2,105	7	67.4		97	4	39	21	48	0.35		0.35	0.0	1	27	0	4		State University
Berkeley.	Alameda.	317	23	59.6	+ 0.7	84	7	47	28	25	0.60	- 1.17	0.47	0.9	2	19	7	5	sw.	Southern Pacific Co.
Biggs.	Butte.	98	11	68.8	+ 6.4	95	8	50	13	56	0.65	- 0.87	0.30	0.0	3	20	1	10	s.	W. A. Chalfant.
Bishop.	Inyo.	4,450	15																Victor Hope.	
Blocksburg.	Humboldt.	1,700	4	62.4		86	28	34	24	43	0.77		0.40	0.0	5	25	1	5	nw.	Southern Pacific Co.
Blue Canon.	Placer.	4,695	11	57.2	+ 5.9	82	27	35	13	35	1.38	- 3.67	0.80	5.0	0	21	1	1	s.	H. V. Blenkiron.
Blythe.	Riverside.	1	70.6			107	9	37	28	56	0.02		0.02	0.0	1	22	7	2	sw.	A. J. Haun.
Branscomb.	Mendocino.	2,000	10	56.7		89	7	32	4	47	1.17	- 4.65	0.47	0.0	3	24	3	4	n.	U. S. Weather Bureau.
Brawley.	Imperial.	-105	1	74.5		105	8†	44	23	46									Cal. Gas & Electric Co.	
Bruce Creek.	Butte.	2,140	6	56.4		90	7	32	18	50	2.20		2.00	0.0	2	17	5	9	sw.	J. E. Peck.
Calexico.	Imperial.	0	57.4			102	9	50	21	38	0.00		0.00	0.0	0	26	0	5	n.	Southern Pacific Co.
Caliente.	Kern.	1,290	34	70.6	+ 5.8	78	18	62	11		0.52	- 1.76	0.36	0.0	3	26	0	5	w.	Do.
Calistoga.	Napa.	363	38	62.8	+ 2.8	88	18	50	1†										F. M. Richter.	
Campbell.	Santa Clara.	217	13	59.8	+ 1.3	92	7	37	24	45	0.25	- 0.60	0.17	0.0	2	18	4	9	sw.	S. B. Johnson.
Camptonville (near).	Modoc.	3,500	3	62.0		94	8	31	13	42	2.63		1.34	0.0	3	19	3	4		T. H. Johnstone.
Cedarville.	Butte.	4,675	18	50.6	+ 1.7	82	7†	25	13	45	0.45	- 1.13	0.40	0.0	3	23	8	0	sw.	Butte Co. R. R.
Chico.	Humboldt.	189	40	64.8	+ 0.4	94	7	40	28	45	0.50	- 0.01	0.25	0.0	3	23	3	6	n.	O. I. Westerburg.
China Flat.	San Bernardino.	600	1	60.4		85	8	36	24†	45	0.65		0.42	0.0	2	20	7	4	nw.	Southern Pacific Co.
Chino.	Placer.	714	18	67.4	+ 3.6	98	8	48	13		0.48	- 0.58	0.33	0.0	2	21	0	10	e.	Do.
Cisco.	Los Angeles.	5,939	39	45.4	- 1.3	66	2†	24	10†		0.80	- 1.68	0.50	0.0	2	23	0	8		F. P. Brackett.
Claremont.	Los Angeles.	1,200	18	67.6	+ 5.2	104	8	43	12	46	0.40	- 0.82	0.20	0.0	5	20	8	3	w.	Lloyd Browne.
Cloverdale.	Sonoma.	340	8	63.5		98	6	40	27†	45	1.01		0.96	0.0	2	24	5	2	n.	Southern Pacific Co.
Colfax.	Placer.	2,421	39	60.2	+ 0.7	87	1†	36	13†	37	2.59	+ 0.22	1.75	0.0	3	23	0	8	n.	W. K. De Jarnatt.
Colusa.		60	7																Cal. Gas & Electric Co.	
Corning.	Tehama.	277	24	71.2	+ 6.4	90	1†	45	13		0.61	- 0.88	0.33	0.0	2	27	1	3	n.	Southern Pacific Co.
Cuyamaca.	San Diego.	4,677	11	56.3	+ 6.7	86	8	36	13	37	1.86	+ 0.11	0.96	0.0	3	15	11	5	e.	L. L. Macquarie.
Daunt.	Tulare.	4,000	3	46.4		79	25	29	13	34	1.20		1.20	0.0	2	22	3	6		D. L. Wishon.
Davisville.	Yolo.	51	38	60.6	- 4.3	97	7	35	24†	52	0.12	- 0.75	0.12	0.0	1	9	16	6	s.	S. H. Beckett.
Deer Creek.	Shasta.	3,700	3	53.9		86	8	30	13	42	2.72		1.46	T.	3	17	8	6	w.	Cal. Gas & Electric Co.
Delta.	Stanislaus.	1,138	25																Santa Fe Co.	
Demair.		126	10	63.1	- 0.4	99	8	39	14	47	0.04	- 0.51	0.04	0.0	1	26	4	1	nw.	Cal. Gas & Electric Co.
Dobbins.	Yuba.	1,650	6	66.0		94	7	42	13	36	1.15		0.64	0.0	3	16	9	6	s.	W. H. Dudley.
Dudleys.	Mariposa.	3,000	1	54.0		87	7	30	14	48	1.18		0.57	0.0	3	18	8	5	n.	Southern Pacific Co.
Dunnigan.	Siskiyou.	85	33	71.9	+ 2.6	92	5†	49	31		0.13	- 0.90	0.13	0.0	1	23	5	4	n.	Do.
Dunsmuir.	Durham.	2,285	21	56.7	+ 4.3	87	7	37	41†		1.58	- 2.88	1.04	0.0	4	24	0	7	n.	R. W. Durham
El Cajon.	Butte.	180	15	64.2	+ 4.0	97	8	39	30†	46	0.60	- 1.06	0.44	0.0	3	24	3	4	sw.	H. H. Kessler.
Electra.	San Diego.	482	11	65.6	+ 1.4	100	7	41	12†	54	0.64	+ 0.44	0.66	0.0	3	27	2	2	sw.	Cal. Gas & Electric Co.
Elsinore.	Amador.	725	6	66.5		97	7	43	14	39	0.95		0.83	0.0	3	18	10	3		W. H. Bohannon.
Emigrant Gap.	Riverside.	1,234	13	66.4	+ 0.8	103	7	40	20†	54	0.53	+ 0.01	0.23	0.0	3	21	6	6	w.	Southern Pacific Co.
Econdido.	Placer.	5,230	36	49.8	- 0.9	79	7†	23	10	43	0.70	- 2.22	0.45	3.0	2	24	0	7	s.	A. R. Moon.
Eureka.	San Diego.	657	24	68.5	+ 7.0	98	9	29	12	51	1.08	+ 0.61	0.60	0.0	3	27	1	1	w.	U. S. Weather Bureau.
Farmington.	Humboldt.	64	24	52.9	- 0.2	66	8	42	28	21	0.82	- 2.03	0.52	0.0	7	8	9	14	nw.	Southern Pacific Co.
Folsom.	San Joaquin.	111	21	66.8	+ 3.1	94	8	47	13		0.38	- 0.51	0.28	0.0	2	23	6	2	sw.	Do.
Fordyce Dam.	Sacramento.	252	35	65.4	+ 1.4	99	8†	42	31	46	0.73	- 0.63	0.66	0.0	3	25	1	5	s.	F. O. Hutton.
Fouts Springs.	Nevada.	6,500	15	46.7		67	8	28	14	30	1.35	- 3.36	0.75	6.0	2	13	15	3	sw.	E. E. Roening.
Frederick.	Fresno.	293	23	66.8	+ 2.1	98	8	34	4	49	1.01		0.40	0.0	3	20	7	4	nw.	H. S. Green.
Fruto.	Glenn.	624	21	64.2	0.0	90	5†	45	31		0.30	- 1.10	0.20	0.0	2	27	0	4	s.	U. S. Weather Bureau.
Galt.	Sacramento.	49	32																Do.	
Georgetown.	El Dorado.	2,650	37	62.6	- 1.0	90	7†	36	13	41	2.13	- 1.28	1.23	0.0	3	27	0	4	se.	H. D. Jerrett.
Gilroy.	Santa Clara.	193	26	57.1	- 3.2	95	1†	40	11		0.54	- 0.58	0.45	0.0	3	27	0	4	se.	Southern Pacific Co.
Gold Run.	Placer.	3,222	11	63.0	+ 1.5															

TABLE 1.—Climatological data for October, 1910. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.			Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmetted.	Number of rainy days 0.1 inch or more.	Number of partly cloudy days.	Number of cloudy days.		
California—Cont'd.																			
Lone Pine.	Inyo.	2,728	5	58.4	.....	86	8	30	12	42	0.26	.....	0.26	0.0	1	18	13	s.	G. F. Marsh.
Long Valley.	Lassen.	4,400	1	52.0°	.....	81	7	30	23	37	0.61	.....	0.61	0.0	1	17	3	sw.	A. G. Evans.
Los Angeles.	Los Angeles.	203	33	67.2	+ 4.9	96	24	49	12	31	0.82	+ 0.08	0.73	0.0	5	23	5	sw.	U. S. Weather Bureau.
Los Banos.	Merced.	121	23	66.0	+ 1.8	90	8†	46	14	32	0.28	- 0.07	0.28	0.0	1	20	1	w.	Southern Pacific Co.
Los Gatos.	Santa Clara.	600	23	62.8	+ 2.1	95	7	41	27	39	0.60	- 1.70	0.30	0.0	3	21	4	n.	F. H. McCullagh.
Lytle Creek.	San Bernardino.	2,900	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. E. Anderson.	
Madeloel.	Siskiyou.	4,258	3	45.4	.....	79	7	21	26	46	1.11	.....	0.92	0.0	3	21	4	nw.	B. V. L. Co.
Madeline.	Lassen.	5,270	1	46.6	.....	82	7	23	27	57	1.24	.....	1.01	2.0	0	6	6	sw.	J. H. Williams.
Magalia.	Butte.	2,321	6	60.9	.....	91	6	35	12	45	2.74	.....	2.20	0.0	3	22	6	se.	Butte County R. R. Co.
Mammoth Tank.	Imperial.	257	32	80.2	+ 3.4	108	8	48	18†	56	0.00	- 0.12	0.00	0.0	2	28	0	w.	Southern Pacific Co.
Marysville.	Yuba.	67	39	64.0	- 1.3	90	8†	43	24†	43	1.50	+ 0.45	1.00	0.0	2	27	4	s.	Do.
Mecca.	Riverside.	-185	4	74.4	.....	107	8	44	16	48	0.00	.....	0.00	0.0	0	25	4	e.	A. Lunsted.
Menlo Park.	San Mateo.	64	32	63.5	+ 4.3	88	8†	44	23†	.....	2.8	- 0.73	0.28	0.0	1	24	0	n.	Southern Pacific Co.
Merced.	.....	173	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Santa Fe Co.	
Mill Creek (1).	Amador.	3	57.2	.....	.....	86	7†	37	13†	40	1.57	.....	1.32	0.0	3	24	4	e.	Cal. Gas & Electric Co.
Milton (near).	Calaveras.	660	19	68.0	+ 1.8	95	8	47	14	37	0.35	- 0.88	0.27	0.0	2	24	5	2.	J. H. Southwick.
Modesto.	Stanislaus.	90	38	70.4	+ 5.1	98	7	45	15	51	0.80	- 0.24	0.30	0.0	1	22	3	7.	Southern Pacific Co.
Mojave.	Kern.	2,751	33	73.6	+ 8.0	99	26†	50	15†	44	0.40	+ 0.15	0.20	0.0	3	21	5	5.	Do.
Mokelumne Hill.	Calaveras.	1,550	17	65.2	+ 6.9	92	7	44	13†	41	0.89	- 0.35	0.66	0.0	2	20	3	w.	C. E. Prindle.
Mono Ranch.	Ventura.	3,210	4	57.5	.....	84	7†	33	12	37	0.77	.....	0.58	0.0	2	20	3	s.	H. Lathrop.
Montague.	Siskiyou.	2,450	22	50.4	- 6.1	88	8	15	28	59	0.50	- 0.13	0.40	0.0	2	17	6	n.	G. H. Chambers.
Monterey.	Monterey.	15	45	55.8	- 2.4	76	8	42	28	56	0.94	+ 0.09	0.73	0.0	3	25	5	se.	Southern Pacific Co.
Monterio.	Kern.	4,500	11	62.4	+ 0.7	84	9	34	12	44	0.84	- 0.17	0.72	0.0	3	15	10	nw.	John C. Knecht.
Monumental.	Del Norte.	5	54.8	.....	.....	82	7	30	20	45	3.47	.....	1.30	0.0	3	21	1	9.	G. F. Morgan.
Mount Tamalpais.	Marin.	2,375	11	60.6	+ 1.9	87	7	40	12	29	0.91	- 1.29	0.58	0.0	3	26	3	nw.	U. S. Weather Bureau.
Napa City.	Napa.	20	33	61.1	+ 2.4	92	7	38	23	44	0.90	- 0.51	0.60	0.0	2	16	9	s.	Thomas Hull.
Napa (S. H.)	do.	60	32	63.3	+ 4.6	96	7	44	24†	44	0.84	- 0.63	0.58	0.0	3	22	4	sw.	W. H. Martin.
Needles.	San Bernardino.	477	18	73.5	+ 1.3	95	7	50	15	37	0.00	- 0.11	0.00	0.0	0	29	2	w.	Santa Fe Co.
Nellie.	San Diego.	5,350	1	60.6	.....	84	7†	38	14†	41	2.20	.....	1.00	T.	3	30	1	0.	C. J. Bailey.
Nevada City.	Nevada.	2,580	18	58.6	+ 4.6	96	7†	30	13†	54	2.55	- 0.16	1.45	0.0	4	21	5	sw.	S. W. Marsh.
Newcaste.	Placer.	970	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George D. Kellogg.	
Newhall.	Los Angeles.	1,200	33	67.9	+ 5.8	102	7	48	13	41	1.00	+ 0.28	0.48	0.0	5	28	0	3.	Southern Pacific Co.
Newman.	Stanislaus.	91	21	67.8	+ 3.3	96	8	43	16	41	0.12	- 0.70	0.12	0.0	1	26	5	n.	E. S. Wangenheim.
Nimshew.	Butte.	2,500	6	59.6	.....	86	5†	38	4	42	2.67	.....	1.68	0.0	4	18	8	5.	Cal. Gas & Electric Co.
North Bloomfield.	Nevada.	3,200	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	W. G. Shand.	
North Fork.	Madera.	3,000	6	61.2	.....	96	6	34	14	46	2.00	.....	1.65	0.0	3	18	8	5.	G. H. Shinn.
Oakland.	Stanislaus.	156	16	65.0	+ 2.5	97	8	43	31	56	0.16	- 0.98	0.09	0.0	2	23	6	2.	Southern Pacific Co.
Oceanside.	Alameda.	36	34	59.8	+ 1.4	80	24	47	23	52	0.55	- 1.14	0.44	0.0	2	20	5	5.	Chabot Observatory.
Ojai Valley.	San Diego.	900	4	65.6	.....	100	24	39	12	52	0.69	.....	0.28	0.0	6	23	8	1.	H. D. Brodie.
Orland.	Glen.	254	28	66.9	+ 0.5	94	7†	44	31	46	0.43	- 0.69	0.24	0.0	2	24	4	3.	W. H. Duncan.
Orleans.	Humboldt.	520	7	64.6	.....	93	7	38	28	51	0.94	.....	0.68	0.0	5	20	0	11.	W. W. Patch.
Oroville (near).	Butte.	250	26	66.6	+ 0.5	95	7†	45	13†	39	0.47	- 1.31	0.47	0.0	1	17	4	10.	Fred T. Hale.
Palermo.	do.	213	19	64.6	+ 2.7	96	7	41	13†	48	0.50	- 1.50	0.35	0.0	2	14	13	4.	E. D. Fairchild.
Palm Springs.	Riverside.	584	21	74.6	+ 0.1	102	7†	55	12	58	0.36	+ 0.21	0.26	0.0	2	23	6	2.	Miss Hettie Boalt.
Pasadena.	Los Angeles.	827	20	66.9	+ 2.1	100	6†	42	12	46	0.75	- 0.23	0.38	0.0	5	28	2	1.	Southern Pacific Co.
Paso Robles.	San Luis Obispo.	800	23	61.6	+ 1.8	94	8	32	26	62	0.27	- 0.72	0.11	0.0	4	22	5	4.	E. R. Sorver.
Peachland.	Sonoma.	190	14	61.6	+ 3.0	98	25	36	41	57	0.94	- 2.91	0.55	0.0	3	23	5	3.	Dr. F. W. Sawyer.
Penstock Camp.	Tuolumne.	3,750	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Paul E. Parnell.	
Placerville.	El Dorado.	1,875	21	54.2	- 1.3	92	2	38	14†	40	1.79	- 0.75	1.08	0.0	3	27	1	3.	Tuolumne W. P. Co.
Point Lobos.	San Francisco.	250	17	59.4	+ 3.1	84	7	47	29	56	0.48	- 0.85	0.36	0.0	3	28	0	17.	A. Baring-Gould.
Point Reyes.	Porterville.	490	18	55.1	+ 0.4	78	7	44	1	27	0.27	- 1.83	0.19	0.0	5	11	5	15.	John Hyslop.
Quincy.	Tulare.	464	21	68.2	+ 3.6	102	8	43	14	47	0.64	+ 0.06	0.49	0.0	6	23	6	2.	U. S. Weather Bureau.
Red Bluff.	Plumas.	3,400	15	53.4	+ 3.8	80	8†	22	28	55	0.22	- 1.07	2.00	0.0	2	23	3	6.	Harry E. Cowie.
Redding.	Tehama.	307	33	66.3	+ 2.5	92	7	45	31	34	0.30	- 1.06	0.21	0.0	4	25	3	3.	D. N. Rogers.
Redlands.	Shasta.	552	35	66.6	+ 2.1	90	5	44	31	38	0.43	- 3.00	0.29	0.0	3	11	3	17.	U. S. Weather Bureau.
Reedley.	San Bernardino.	1,352	17	67.2	+ 2.2	101	7†	43	13†	44	0.51	- 0.17	0.16	0.0	4	20	8	3.	L. F. Bassett.
Rialto (near).	Fresno.	347	10	65.6	+ 1.6	97	8†	45	31	44	1.12	+ 0.08	1.12	0.0	1	27	1	3.	Paul W. Moore.
Riverside.	San Bernardino.	2,250	4	70.4	.....	96	7†	45	13†	51	0.59	.....	0.30	0.0	3	23	2	6.	Santa Fe Co.
Rocklin.	Riverside.	851	28	66.7	+ 2.5	103	7	41	12†	53	0.59	+ 0.07	0.32	0.0	4	20	7	4.	So. California Edison Co.
Rohnerville.	Placer.	249	39	71.8	+ 8.2	105	3	42	31	50	0.62	- 0.52	0.62	0.0	1	21	0	10.	C. W. Barton.
Sacramento (1).	Humboldt.	75	7	54.9	.....	79	8	36	24	34	1.01	.....	0.58	0.0	5	17	7	n.	Southern Pacific Co.
Sacramento (2).	Sacramento.	71	33	64.6	+ 2.4	93	8	44	31	33	0.28	- 0.62	0.28	0.0	2	22	5	4.	Dr. R. Callahan.
St. Helena.	do.	35	57	61.8	- 0.9	86	7†	44	31	33	0.34	- 0.50	0.30	0.0	3	20	5	6.	U. S. Weather Bureau.
Salinias.	Napa.	255	2	62.8	.....	97	7	38	22†	54	0.82	.....	0.69	0.0	3	23	1	7.	S. H. Gerrish.
San Bernardino.	Monterey.	40	36	60.8	+ 3.3	95	5	39	16	41	0.31	- 0.45	0.20	0.0	3	20	1	0.	B. F. Kettlewell.
San Diego.	San Bernardino.	1,054	26	67.4	+ 4.3	105	7†	41	13	55	1.04	+ 0.45	0.39	0.0	4	18	10	3.	Miss E. Ruth Abbott.
San Francisco.	San Diego.	93	39																

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TABLE 1.—Climatological data for October, 1910. District No. 11—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.				Sky.			Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, .01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.			
<i>California—Cont'd.</i>																					
Summit.	Placer.	7,017	37	52.7	+ 8.7	90	7	25	13	50	0.50	- 2.02	0.30	3.0	2	25	0	s. sw.	Southern Pacific Co.		
Susanville.	Lassen.	4,175	21	51.2	+ 0.6	81	9	27	28	38	0.58	- 1.07	0.50	0.0	3	18	10	3	nw.	James Branhamp.	
Tamarack.	Alpine.	8,000	4	41.7		69	8	16	14	36	2.03		1.08	13.0	3	21	3	7	sw.	William Bennett.	
Tehachapi.	Kern.	3,964	33	60.9	+ 4.8	82	7	45	13	....	0.61	+ 0.16	0.49	0.0	2					Southern Pacific Co.
Tehama.	Tehama.	220	39	60.4	- 4.0	82	14	34	30†	....	0.52	- 0.76	0.33	0.0	3	31	0	0	s.	Do.
Three Rivers.	Tulare.	870	64	64.4		97	8	38	14	42	1.75		1.06	0.0	2	16	11	4	sw.	E. D. Barton.	
Towle.	Placer.	3,704	24	57.0	+ 1.2	84	7†	31	13	39	1.98		0.65	1.05	0.0	3	25	4	2	n.	Southern Pacific Co.
Tracy.	San Joaquin.	64	30	76.3	+12.8	88	14†	67	15†	....	0.10	- 0.50	0.05	0.0	2	27	0	4	nw.	Do.
Ukiah.	Mendocino.	620	17																Dr. George McGowen.		
Upland.	San Bernardino.	1,750	13	65.0	+ 2.5	98	7	42	12†	41	0.38	- 0.72	0.18	0.0	3	21	5	5	w.	A. P. Harwood.	
Upper Lake.	Lake.	1,350	25	58.5	- 1.3	90	6*	36	4	42	0.76	- 0.73	0.43	0.0	3	24	3	4	sw.	C. M. Hammond.	
Vacaville.	Solano.	175	22	61.4	- 3.0	97	7	44	2	47	0.64	- 0.80	0.47	0.0	2	21	10	0	sw.	G. O. Coburn.	
Valley Springs.	Calveras.	673	21	67.2	+ 4.0	92	7	53	14	....	0.42	- 1.01	0.30	0.0	2	24	4	3	nw.	Southern Pacific Co.
Visalia.	Tulare.	334	22	61.4	- 0.6	82	1	40	15†	38	0.15	- 0.45	0.15	0.0	2	16	12	3	nw.	Santa Fe Co.	
Warner Springs.	San Diego.	3,165	2	62.2		95	8†	36	12	46	0.79		0.41	0.0	3	28	3	0		Mrs. E. F. Sanford.	
Wasco.	Kern.	336	10	71.0*	+ 6.4	99	8	46	15	42	0.25	+ 0.08	0.25	0.0	1					Santa Fe Co.	
Watsonville.	Santa Cruz.	23	14	58.4	0.0	92	7	37	2†	46	0.71	- 1.06	0.50	0.0	3	12	14	5		Spreckels Sugar Co.	
Westley.	Stanislaus.	90	21	68.8	+ 2.6	92	8	50	12†	....	0.20	- 0.63	0.20	0.0	1	26	0	5		Southern Pacific Co.
Wheatland.	Yuba.	84	23	63.5	+ 1.0	90	8	42	31	36	0.58	- 1.09	0.37	0.0	3	22	5	4	s.	Wm. Lumbard.	
Willows.	Glenn.	136	31	64.8	- 0.4	90	5	41	31	45	0.17	- 0.82	0.10	0.0	3	23	3	6	n.	M. T. Harrington, jr.	
Yosemite.	Mariposa.	3,945	6	53.7		89	8	29	19	49	1.47		1.20	0.5	2	19	9	3	sw.	C. W. Tucker.	

*, b, c, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

* Precipitation included in that of the next measurement.

** Temperature extremes are from observed readings of the dry bulb; means are computed from observed readings.

† Also on other dates.

‡ Separate dates of falls not recorded.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

Estimate by observer.

¶ Precipitation for the 24 hours ending on the morning when it is measured.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 2.—*Daily precipitation for October, 1910. District No. 11, California.*

TABLE 2.—*Daily precipitation for October, 1910. District No. 11—Continued.*

TABLE 2.—*Daily precipitation for October, 1910. District No. 11—Continued.*



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TABLE 2.—*Daily precipitation for October, 1910. District No. 11—Continued.*

TABLE 3.—Maximum and minimum temperatures at selected stations, October, 1910. District No. 11, California.

Date.	Lakeview, Ore.	California.																									Porterville.	Red Bluff.												
		Alturas.				Bartow.				Branscomb.				Brawley.				Colusa.				Eureka.				Fresno.				Independence.				Los Angeles.						
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.													
1		74	40	96	58	71	39	97	69	60	50	90	59	80	54	77	53	73	49	81	45	94	63	79	59							
2		68	23	92	60	68	37	95	61	62	45	79	51	76	50	76	57	68	50	79	39	93	62	81	59							
3		64	33	92	55	60	37	98	57	63	47	85	54	82	44	77	57	62	47	78	39	93	50	74	52							
4		59	26	97	55	70	32	98	60	62	44	78	56	80	51	75	58	64	46	75	39	88	52	73	46							
5		76	30	50	94	38	94	64	62	47	83	52	81	54	80	77	53	53	85	39	88	54	89	55							
6		82	33	.....	50	87	40	101	61	.....	.....	.....	.....	.....	.....	.....	61	51	95	58	83	47	91	83	82	65	90	43	97	54	90	58
7		83	33	.....	55	89	42	104	89	.....	.....	.....	.....	.....	.....	.....	63	50	95	59	84	49	88	83	87	73	96	45	100	54	92	60
8		84	32	.....	55	80	43	105	85	.....	.....	.....	.....	.....	.....	.....	66	48	93	63	86	49	90	83	85	65	96	46	102	55	91	60
9		78	39	.....	55	78	43	105	80	.....	.....	.....	.....	.....	.....	.....	60	54	93	58	83	42	89	83	85	75	46	98	55	84	51	91
10		73	41	.....	53	55	47	97	70	.....	.....	.....	.....	.....	.....	.....	56	52	77	57	83	61	78	58	50	63	45	88	55	69	58	
11		57	32	.....	55	49	42	80	61	.....	.....	.....	.....	.....	.....	.....	57	51	63	53	64	36	64	54	45	40	67	52	59	51	51	
12		48	32	.....	45	50	41	79	51	.....	.....	.....	.....	.....	.....	.....	53	50	60	48	60	34	65	49	45	40	50	37	66	44	56	49
13		56	31	73	43	57	40	79	54	.....	.....	.....	.....	.....	.....	.....	55	48	62	50	46	39	66	52	58	42	47	30	60	49	70	48	
14		60	25	70	40	61	41	68	52	.....	.....	.....	.....	.....	.....	.....	60	45	70	47	65	36	66	53	67	52	71	39	73	43	53		
15		71	29	80	50	64	41	72	53	.....	.....	.....	.....	.....	.....	.....	62	48	75	54	52	42	67	51	60	45	71	39	74	53	56		
16		66	31	85	43	64	42	78	50	.....	.....	.....	.....	.....	.....	.....	60	51	75	52	60	33	67	51	55	44	73	39	88	54	71	48	
17		57	41	85	41	67	44	88	55	.....	.....	.....	.....	.....	.....	.....	62	54	73	48	70	33	71	51	60	46	73	39	74	54	73		
18		65	28	85	49	76	45	92	53	.....	.....	.....	.....	.....	.....	.....	57	50	74	51	72	49	80	74	54	90	36	80	54	82	57		
19		69	31	85	51	85	47	87	59	.....	.....	.....	.....	.....	.....	.....	66	45	84	53	70	41	96	57	72	59	83	38	82	54	83	62	
20		71	27	85	54	94	49	88	58	.....	.....	.....	.....	.....	.....	.....	54	48	84	54	69	37	86	64	75	61	80	38	90	51	81	51	
21		73	25	82	39	80	41	86	48	.....	.....	.....	.....	.....	.....	.....	53	49	83	56	69	38	85	63	71	62	78	40	88	53	79	53	
22		69	26	90	49	76	40	87	45	.....	.....	.....	.....	.....	.....	.....	57	49	83	54	72	44	88	66	76	56	79	39	86	55	79	52	
23		74	22	90	44	71	38	90	44	.....	.....	.....	.....	.....	.....	.....	52	44	78	51	76	47	84	74	73	62	83	36	92	49	85	52	
24		76	23	90	42	74	39	97	52	.....	.....	.....	.....	.....	.....	.....	58	43	83	52	76	47	95	65	75	65	83	36	97	43	90	56	
25		73	23	87	42	76	39	90	55	.....	.....	.....	.....	.....	.....	.....	53	49	86	56	77	38	82	63	73	61	86	39	90	49	85	52	
26		68	26	89	43	89	41	87	57	.....	.....	.....	.....	.....	.....	.....	59	48	85	51	79	42	82	73	66	86	39	88	48	86	64		
27		71	22	89	44	85	46	95	57	.....	.....	.....	.....	.....	.....	.....	51	45	85	52	77	48	73	57	63	86	37	89	49	86	60		
28		76	22	85	40	86	45	91	58	.....	.....	.....	.....	.....	.....	.....	49	42	87	53	73	45	73	57	64	83	37	90	48	82	52		
29		76	23	85	53	79	42	87	55	.....	.....	.....	.....	.....	.....	.....	53	46	82	55	71	41	87	60	67	43	82	39	84	51	80	50	
30		75	24	83	49	70	40	84	61	.....	.....	.....	.....	.....	.....	.....	57	46	70	51	73	47	71	57	56	45	69	37	85	55	83	46	
31		71	27	86	48	72	39	88	58	.....	.....	.....	.....	.....	.....	.....	54	41	74	46	75	40	74	55	67	50	77	35	76	45	81	45	
Means.		89.8	29.0	88.1 ^b	43.7	72.4	41.0	89.9	59.1	.....	.....	.....	.....	.....	.....	.....	53.0	47.8	80.2	53.4	73.1	44.1	77.0	57.4	67.6	53.7	78.5	38.8	85.3	61.2	78.8	53.8	

Date.	Redlands.	California.																									Stockton.	Summit.	Susanville.	Yosemite.					
		Sacramento.				San Diego.				San Francisco.				San Jose.				San Luis Obispo.				Santa Barbara.				Santa Rosa.									
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
1		86	61	82	55	74	63	62	51	71	48	72	50	70	57	80	47	73	39	78	56	75	43	70	44	79	39	80	39	80	39				
2		82	47	80	53	68	59	68	52	76	42	80	49	70	51	81	40	72	44	74	49	74	30	84	32	82	32	83	32	83	32				
3		81	52	77	55	70	57	64	52	71	44	81	55	77	50	80	45	75	34	77	50	66	34	70	43	78	33	83	33	84	33				
4		82	53	75	49	67	60	67	50	74	49	80	56	68	55	79	39	73	51	77	50	66	34	70	43	78	33	83	33	84	33				
5		97	52	85	55	69	61	70	55	84	45	90	66	72	55	89	47	70	38	77	53	69	31	70											